

BUYING AND HANDLING FEED FOR PORK PRODUCTION

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In pork production, feed represents more of the total cost than any other livestock feeding enterprise. Pork producers need to take a careful look at their feed buying and handling before spending money.

In a complete swine operation, from farrow to market, the feed cost represents 55 to 85 percent of the total production cost. If weaning pigs are fed to 200 pounds, feed cost might represent as much as 85 percent of the total pork production cost.

A 120-sow herd, productively handled under a good confinement system, will produce about 2,400 market pigs a year. Since about 900 pounds of feed are required to produce a 220-pound market pig, this production would require 1,080 tons of feed. When a swine operation uses feed in large quantities, substantial savings are possible through buying and mixing feed on the farm. However, unless feed is fed in large amounts, there is little chance of saving money by mixing feed on the farm. Mixed feed might be purchased from the same mill at a better price than if feed ingredients were purchased and processed on the farm.

Feed mills vary in their markup over cost of ingredients. Many have a basic price on finished feeds of about \$20 per ton above the cost of ingredients. This does not mean a savings of \$20 per ton from feed processed at the farm. From this markup, the cost of labor, maintenance, interest on investment, taxes and insurance must be deducted.

Commercial feed is mixed in large quantities by skilled people and usually is done more efficiently than on the farm. It is unlikely that a producer can buy feed ingredients at a price equal to that of a feed mill. Better prices are available if a buyer is in the market every day, buying a large volume.

Savings from mixing feed on the farm are (1) freight from the mill to the farm, (2) a part of the

profit that feed mills make and (3) use of any surplus labor.

Before deciding the volume is large enough to merit on-farm feed processing equipment, other factors need study. To do an efficient job regardless of the volume, it is necessary to install storage bins for grain and other ingredients and for finished feed, if it is to be fed in bulk. A roller mill or a hammer mill and a good commercial mixer are two requirements.

No consideration should be given any kind of mixing on the farm until a volume of about 100 tons per year is reached.

It takes 100 tons of feed for:

- A. 240 pigs raised in a complete hog operation
- B. 45 to 50 sows farrowed twice a year and raising feeder pigs
- C. 300 feeder pigs fed to market weight

Buying Complete Rations

By using complete feed in bulk form, savings in feed cost and in labor of handling can be made, if feed is used in sufficient quantity. The cost of bags and the labor of bagging the feed is about \$5 a ton. Unless a minimum bulk load (6 tons) can be received and unless facilities are available for feeding bulk feed, little or no savings can be made. Hog feeds will become stale and less palatable after bulk feed has been mixed and stored for more than 2 weeks.

Bagged feed should be used until the production consumes 6 tons every 2 weeks to justify the use of bulk feed.

It is costly for most feed mills to deliver less than 6 tons of bulk feed. This is especially important if custom formulas are considered because it requires this much feed to be mixed for one shipment and still maintain efficiency in the mill.

After the ration formulas and the approximate amounts needed are determined, the operator should contact two or three feed mills regarding prices and delivery schedules. Whether registered

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brand name feeds or a custom formula is to be fed, it is a good practice to obtain prices for a definite time period. Most feed mills will give a firm price for 2 or 3 months. This assures them a steady customer for a definite period, allowing them to buy feed ingredients in quantities necessary to manufacture the required quantity of feed. Always try to deal with a financially responsible mill. Have all contracts and agreements in writing.

Savings That Can Be Made

When sufficient volume of feed is used to justify the facilities and equipment for on-farm mixing, definite savings are possible.

1. Feed ingredient deliveries can be made directly to the farm at a rate comparable to that which would be charged for delivery to a feed mill. This eliminates the mill-to-farm freight charge. This savings usually is \$3 to \$5 per ton.

2. With efficient feed processing equipment being used every day, it is reasonable to assume that savings can be made comparable to the profit realized by feed mill management.

3. In addition to these savings, often farm labor can be used part time in feed processing.

Supplement Buying

When buying supplements, the swine operator should study the registration tags to see that all ingredients needed to insure nutritious feed are present. The practices outlined under "Buying Complete Rations" should be followed.

Grain Buying

Purchasing grain can be one of the most hazardous operations in a swine enterprise unless proper procedures are followed. Some of the most important are:

1. Buy only U.S. grades or those you can visually inspect. All feed grains are sold as U.S. No. 1, No. 2, No. 3, No. 4, No. 5 and Sample Grade. Ask your grain dealer for a copy of "U.S. Grain Standards," or write to Superintendent of Documents, Washington, D. C. There is some trading in all grades, but the big movement of grain is sold as U.S. No. 2 Grade. A safe practice is to contract for No. 2 Grade. Even No. 2 Grade of milo and corn permit 14 percent to 15.5 percent moisture, which is too high for safe storage in summer for more than a few weeks. For safe storage, in excess of 6 months, grain must be 12 percent moisture or less, if no aeration equipment is available.

If you are a good judge of grain, you can personally inspect the grain and buy without grade guaranteed. However, a representative sample should be inspected.

If grain becomes musty, sour, develops storage odor or heats, it will grade Sample Grade, which lowers its value greatly. Swine do not relish Sample Grade grain. It is usually high at any cost. When pigs are on full feed, it requires little off-odor or off-flavor feed to throw them "off feed." When buying grain, ask for a grade certificate. If it cost 1 cent per hundredweight more, it is worth it. The certificate will be made out after the grain is loaded and will identify the truck or car. If you do not get a grade certificate, remember that No. 2 grain should be practically odorless, cool, bright in color and free from damaged kernels, weevils and practically free of foreign material.

Weighing Grain

Weighing grain on trucks can be a problem. If scales are unavailable on the farm, a weight ticket from a bonded scale should be used and a bonded scale ticket should be delivered with the grain. This should be part of the contract.

Aids in Checking Grain Quality

Certain equipment can save money and insure the delivery of good quality grain if used routinely.

1. *Grain probe.* A 40-inch partitioned grain probe usually is long enough to sample trucks and box cars, but not hopper cars. A probe in each end of the truck or car and two in between will measure a grain load accurately. Buying grain on a surface inspection is hazardous. Every load should be sampled before any is unloaded.

2. *Grain testing equipment.* This includes a quart-size hand-type weight per bushel tester and a hopper and stand for filling it. All grades of grain have weight per bushel requirements; for example, No. 2 milo must weigh a minimum of 55 pounds per bushel. The milo sold on the market usually tests 53 to 58 pounds per bushel. The higher the test, the better the grain.

3. *Moisture tester.* If grain is to be stored, know the moisture content before unloading. In hot weather, 17 percent moisture grain could sour in 48 to 72 hours. No. 2 milo has a maximum moisture content of 14 percent. Under most conditions, 14 percent moisture grain will store for about 30 days without spoiling. If longer storage is needed, it is safer to buy 13 percent grain, and 12 percent moisture grain should be purchased for long storage (6 to 9 months).

4. *Buy from a reliable grain dealer.* It is good business at certain times of the year to buy grain for future delivery. A good grain dealer has good storage and drying facilities. During the after-harvest is usually a good time to contract grain requirements for about 6 months. Before making

a contract, find out if the dealer is financially reliable. After plans are made, be sure the right grade of grain is delivered at the price that was agreed upon. If a grain dealer is not available, feed and grain brokers are located in all Texas cities and will locate the grain and arrange for its delivery. Their services are good, reliable and inexpensive. They know the best shippers and their market value because they are in the market every day.

Grain Substitutes

The important ones are the byproducts of the grain milling industry. Wheat shorts, wheat bran and wheat middlings are usually priced too high in Texas for economical hog feeding. However, in spring and summer they usually are a better buy than grain. When they are 10 percent cheaper than grain, they should be used for part of the ration if the feeder is equipped to handle them. Wheat shorts and wheat bran usually can be bought in bulk or in bags. Wheat middlings or mids are usually sold in bulk only.

None of the grain byproducts store well. Wheat shorts, bran and mids tend to pack in bulk storage and become stale. Rice bran made from uncooked rice becomes rancid quickly because of the high fat content. If bran is produced from cooked rice, the bran will cause no rancidity problems.

No more than a 30-day supply of grain byproducts should be purchased at one time. Be sure they are from current production when purchased.

Farm-Stored Grain vs. Contract for Future Delivery

A popular belief is that buying a year's supply of grain at harvest and storing it on the farm is more economical than buying grain for future delivery. The successful storing of grain requires excellent equipment and constant attention throughout the storage period, and should be done only after careful investigation and planning.

Before spending money on grain storage, give careful consideration to the possible advantages of buying for future delivery or "bookings."

1. No money is invested for excess storage.
2. Not as much money is invested in grain.
3. There is no risk of grain damage in storage, since all grain is bought by grade when delivered.

Processing Complete Ration on the Farm

The operator will need a feed mill and a feed mixer, plus the equipment necessary to convey ingredients to and from them. Equipment is available that measures ingredients, grinds the grain

and mixes the ration automatically. Another popular piece of equipment is a mobile grinding and mixing unit that also can be used to deliver feed to self feeders. Still another popular system is grain that is ground and stored over the winter. Other ingredients are stored in bulk over the mixer or in bags. When a ration is needed, all ingredients are weighed into the mixer. All systems should be investigated and the one selected that will fit best into the total program.

A swine supplement contains about 15 ingredients. It requires much inventory and careful supervision to mix a good finished supplement. Some of the vitamins may lose potency from long storage. Before deciding to mix supplements, obtain a cost estimate and compare it with a good commercial supplement. When buying commercial feed, analyze the feed regular to see that it meets the quantity on the feed tags. Several commercial laboratories in larger cities analyze feed samples.

Several state feed inspectors will send a limited number of official samples to the state laboratory for analysis. Contact the Feed Control Service at College Station, Texas 77843.

Remember that to get an official sample, the feed must be on the manufacturer's truck when the feed is sampled if it is bulk or in an unopened feed bag.

Handling of Mixed Feed and Feed Ingredients

Mixed feed. It has been said that the "biggest hog" on a farm is feed wastage. It is a common sight on many swine farms to see grain scattered around the unloading pit or hopper, mixed feeds all over floors and falling out doors, feed on the ground where bulk distribution trucks are loaded and, perhaps worst of all, self feeders running over on the ground because feeder adjustments were not watched. Each 100 pounds of feed wasted per day represents a monetary loss of about \$1,000 per year.

When planning for feed storage, consider the following points:

1. Access of all-weather roads for feed delivery.
2. Adequate room for tandem trucks to turn around.
3. All wires and overhead fixtures installed at least 18 feet above the ground.
4. Storage located so delivery trucks will not drive into facilities where animals are kept.
5. Storage located for convenient feeding.
6. Space to expand storage buildings and grain and bulk storage tanks or bins.

The storage and feeding of bagged feed is highly inefficient at best as far as saving any labor is

concerned. The first consideration when expansion is planned is to install facilities for receiving finished bulk feed. The following points deserve priority in planning bulk facilities.

1. Plan a bin that will hold one and a half times a commercial load of feed, or even better, two bins, each of which will hold a commercial load of feed. To be safe, order feed when there is still a few days supply left in the bins. It gives some leeway in deliveries when the bin is one and a half times the size needed to hold a load of feed. If two bins are installed, the operator can clean out a bin between deliveries. This prevents stale and caked feed from forming in the bottom, since the top feed will be used before the feed in the bottom of the bins. When a bin is empty, a new load of feed can be ordered, insuring a constant supply.

2. The type of construction and location of finished feed bins are important considerations. A finished feed bin must be located and constructed so that finished feed can be loaded efficiently to and from it. The cost of labor and equipment will not permit a delivery truck to be delayed in unloading at a farm. When self-feeders are to be filled, the finished feed bin should be equipped with an auger that will promptly load the feed wagon. The finished feed bin should be located so that it can be filled from the feed mixer when farm feed processing begins. A commercial bulk-feed tank with a door on top for loading with an auger from the delivery truck, and equipped with a bottom draw-off auger for the unloading bin makes an excellent finished feed storage. Select one with a wide mouth at the bottom to prevent feed bridging. A 4-inch auger should be the minimum and a 6-inch auger should be considered for fast loading.

3. Determine the size of the finished bin. Talk to several mill managers in your area. If you are planning to buy over 6 tons of feed per shipment, buying feed from a mill 40 to 50 miles from the farm may be practical. Find out how high the boom on his trucks reach, what he considers a good pay load and other important information so that a bin can be installed that coordinates with delivery equipment.

Handling Grain on Farms

In handling grain on the farm, consider the following points:

1. *Location of bins.* If grain is to be delivered by truck, the bin should be located on firm all-weather roads that will support heavy weights and provide room for turn around. If any grain is to be delivered by rail, bins should be adjacent

to a rail siding. It is not practical to receive grain by rail for transfer to bins by truck. Since the grain must be transported to the mill by augers, belts or drags, the bins should be nearby. If portable grinder-mixers are used, the grain will be loaded directly from the bins to the hopper or grinder-mixer wagon.

2. *Size of bins.* Motor transports haul up to 65,000 pounds of grain. Grain boxcars haul up to 120,000 pounds and grain hopper cars haul 200,000 pounds. To insure a steady supply, the capacity of the grain bin should be at least one and a half times that of a commercial grain load. It is better to erect two bins close together that have the capacity of a commercial load of grain. This allows one bin to be emptied before another is unloaded. This prevents grain from caking or spoiling in the bottom of the bins. Two or more bins also allow for grain transfer between bins which is very important if no aeration system is available. Grain that is heating can usually be saved by transferring into another bin. This practice is used extensively, even in large elevators.

3. *Unloading the grain.* Some kind of hopper must be provided at the unloading point for augering grain directly out of the truck or car. Augering of the grain directly from the car or truck usually is too slow to be practical. Above-ground hoppers are in constant need of repair as a result of damage by transports. The most practical means of unloading is a concrete pit with sloping sides and a transfer auger in the bottom.

Many trucks have trap doors in the floor, so they can be driven across the pit. If there are no trap doors, the grain may be unloaded from the tail gate. A mechanical power shovel is practical. If a cover is built over the pit, clearance of 18 feet should be allowed for tall vans.

A bucket elevator should be installed to allow the transfer screw from the hopper or pit to empty directly into the bottom (boot) of the elevator, and at a height and position that grain will flow by gravity into the bins from discharge at the top of the elevator.

4. *Type of bin construction.* Bins are constructed of wood, concrete, concrete block and metal. A corrugated, upright cylindrical bin with a cone at the bottom is satisfactory for farm grain bins.

5. *Speed of unloading.* In the arrangement and construction of grain bins, it is important that all equipment and facilities be designed so that a grain truck can be unloaded in less than 3 hours. A good shipper will not allow an expensive truck and driver to have long free periods.